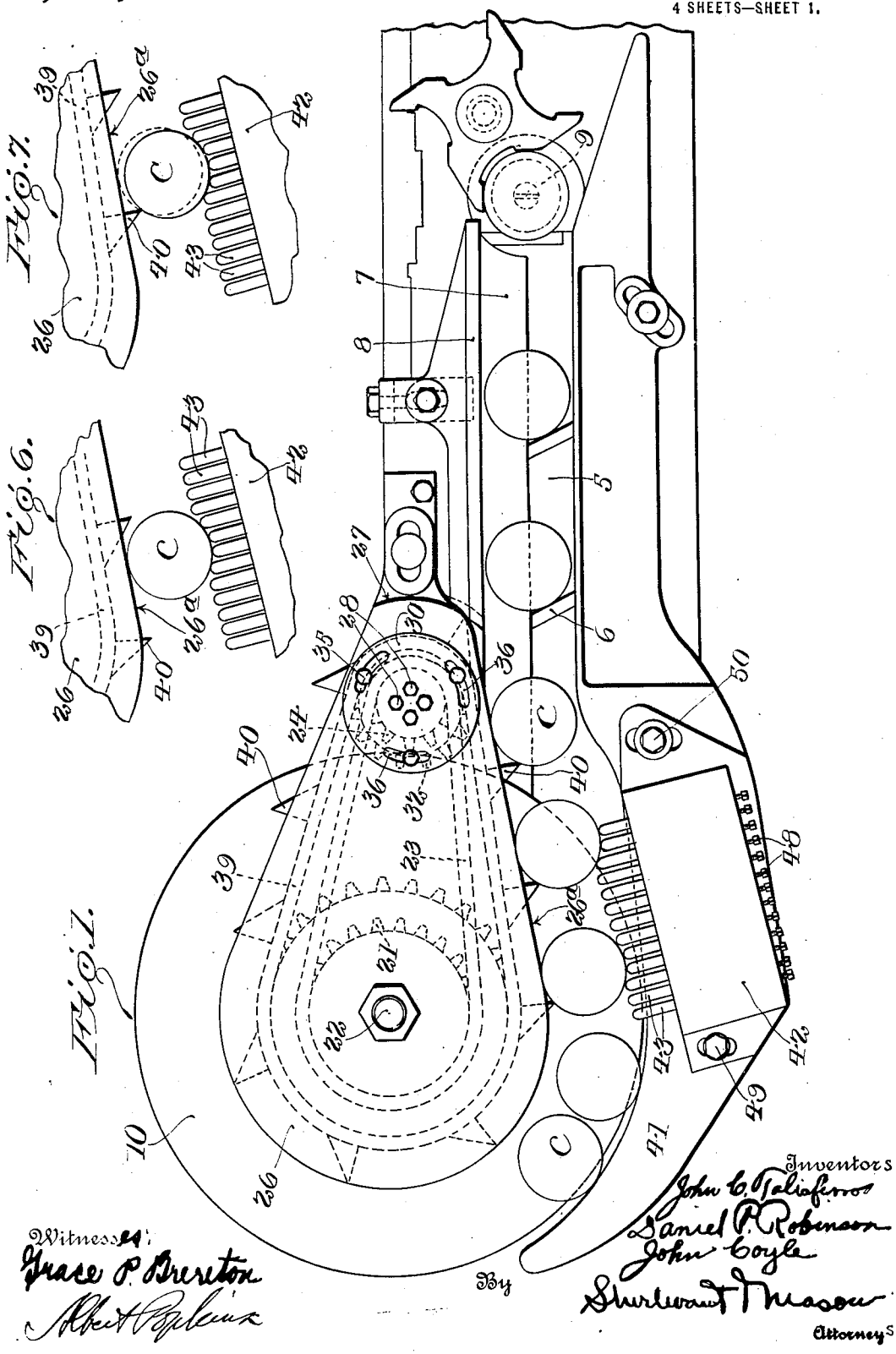
J. C. TALIAFERRO, D. P. ROBINSON AND J. COYLE.

CONVEYING AND TIMING APPARATUS FOR TIMING AND DELIVERING ARTICLES.

APPLICATION FILED JUNE 29, 1916.

1,355,184. Patented Oct. 12, 1920.

4 SHEETS—SHEET 1.



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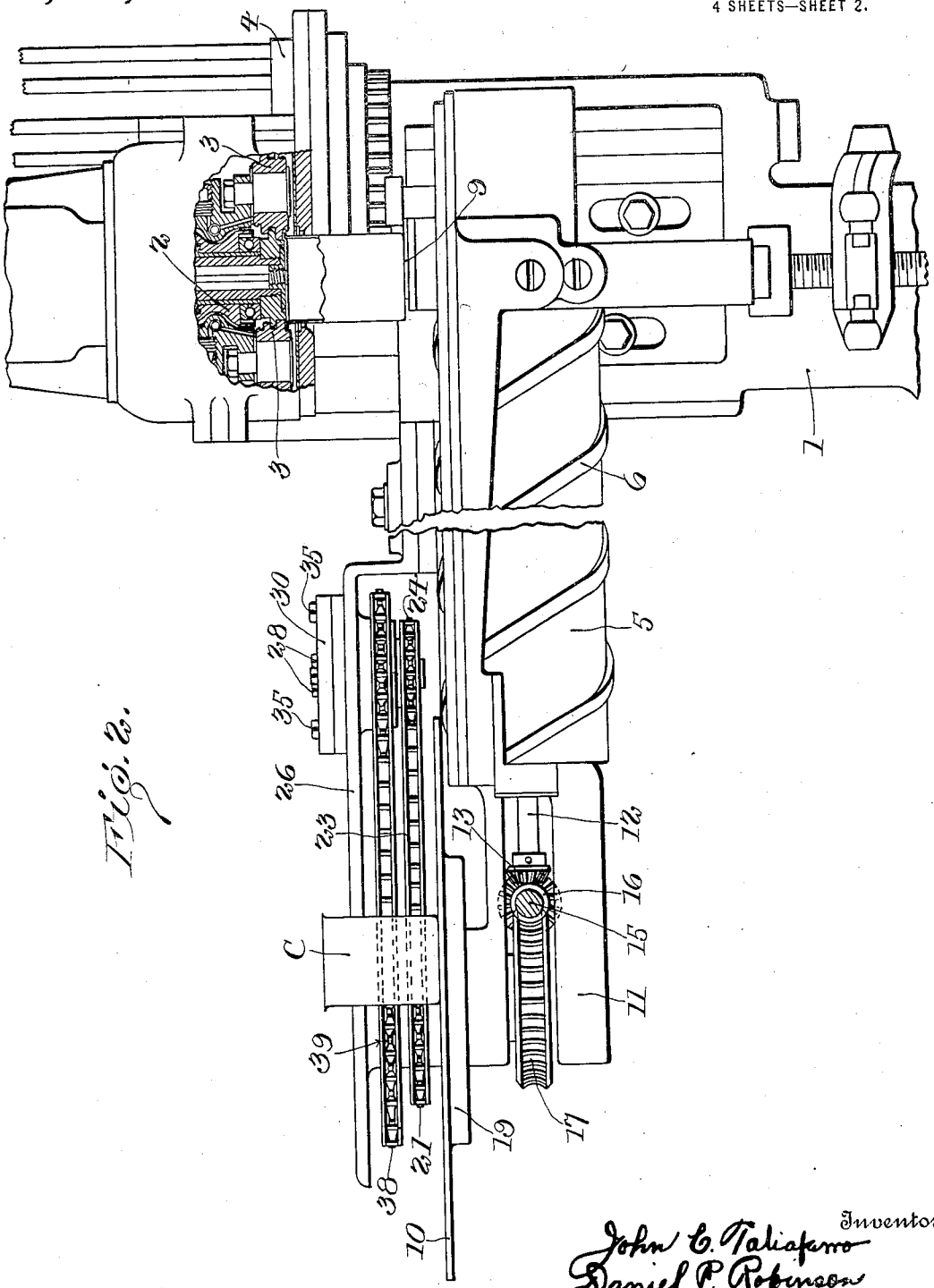


Fig. 2.

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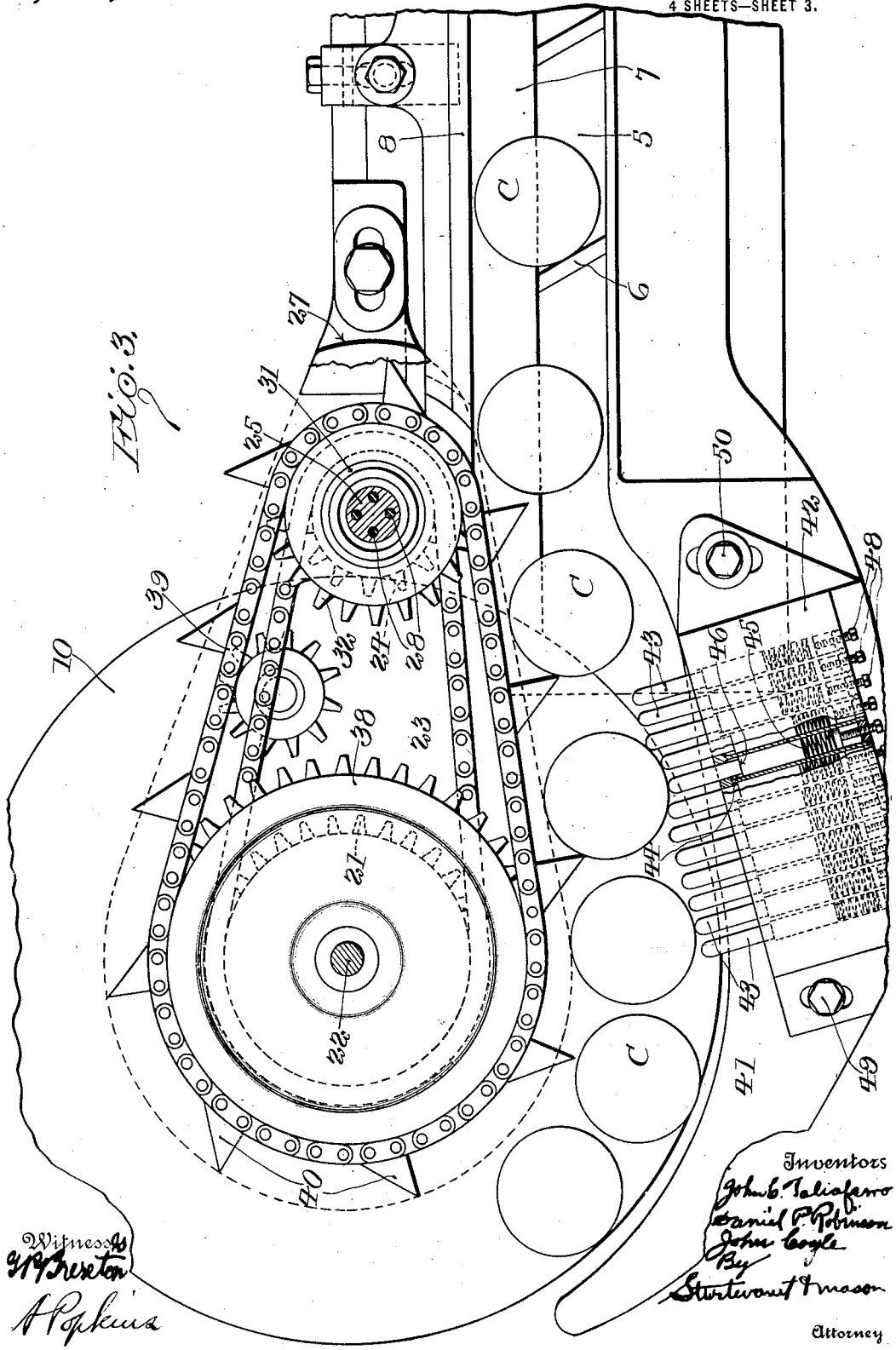
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4 SHEETS—SHEET 3.

Fig. 3.



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4 SHEETS—SHEET 4.

Fig. 4.

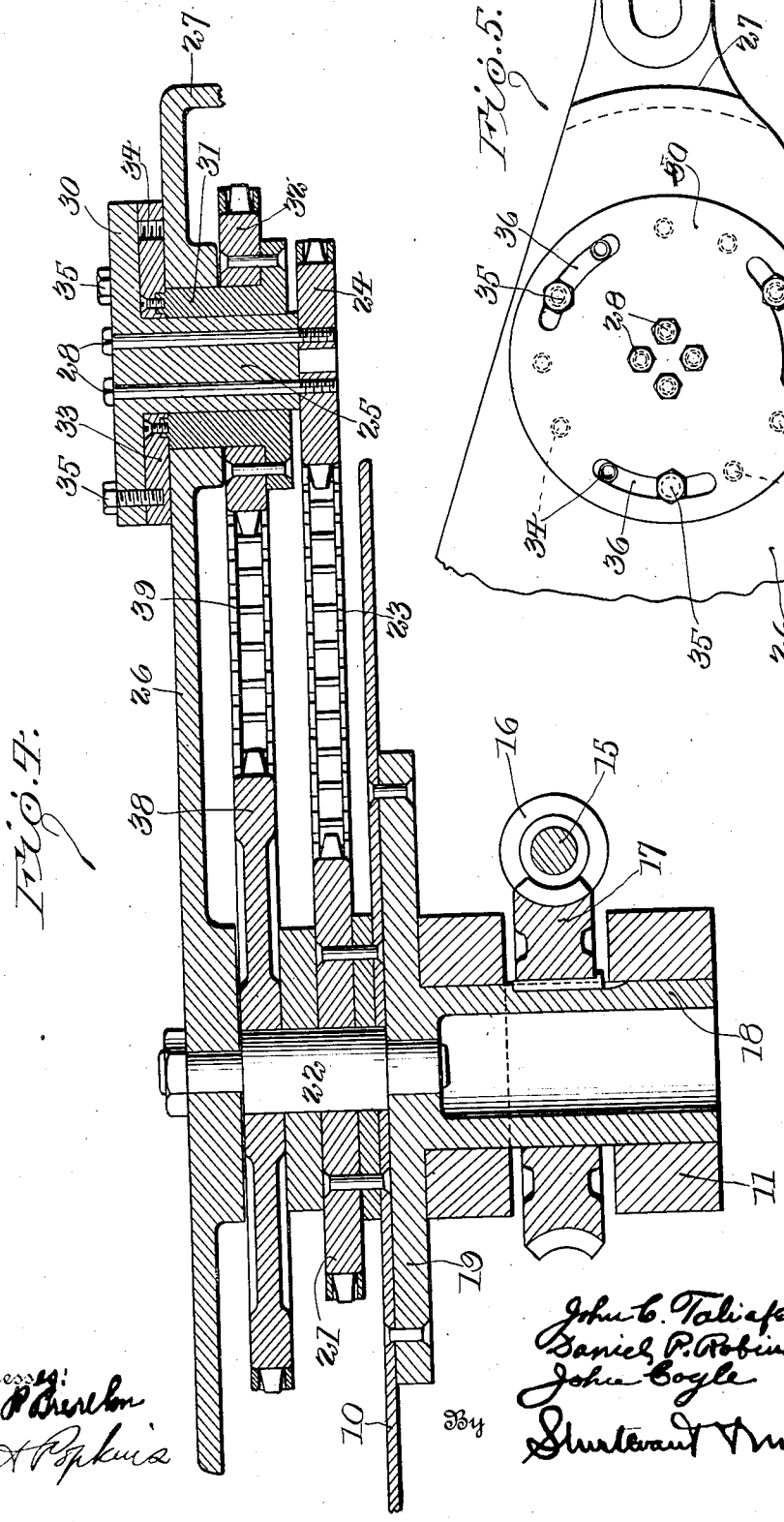


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN C. TALIAFERRO, DANIEL P. ROBINSON, AND JOHN COYLE, OF BALTIMORE, MARYLAND, ASSIGNORS TO CONTINENTAL CAN COMPANY, INCORPORATED, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

CONVEYING AND TIMING APPARATUS FOR TIMING AND DELIVERING ARTICLES.

1,355,184. Specification of Letters Patent. Patented Oct. 12, 1920.

Application filed June 29, 1916. Serial No. 106,704.

To all whom it may concern:

Be it known that we, JOHN C. TALIAFERRO, DANIEL P. ROBINSON, and JOHN COYLE, citizens of the United States, and residents, respectively, of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Conveying and Timing Apparatus for Timing and Delivering Articles, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

The invention relates to new and useful improvements in a conveying and timing apparatus for timing and delivering articles at a given point at pre-determined intervals of time, and more particularly to an apparatus of the above character which may be used for delivering filled cans to a machine for applying the covers thereto and closing the same.

An object of the invention is to provide means coöperating with timing and delivering devices, which means will place the article in proper relation to the timing device delivering the article, said means being so constructed as to exert a varying pressure against the article simultaneously at a plurality of points, whereby the article may be retarded or advanced or otherwise moved into proper position relative to the timing device without any quick or abrupt movements of the article.

A further object of the invention is to provide an apparatus of the above character wherein the means coöperating with the timing and delivering devices consists of a plurality of independently supported members yieldingly engaging the article, said members being so constructed that a plurality thereof will simultaneously engage the article with varying forces which are at a maximum at a point diametrically opposed to the path of travel of the timing and delivering devices.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings, which show by way of illustration one embodiment of the invention:—

Figure 1 is a plan view showing an apparatus embodying our improvement, delivering round cans to a conveyer for a closing machine;

Fig. 2 is a side view of the same, some of the parts being omitted, but showing a portion of the closing machine;

Fig. 3 is an enlarged view, partly in plan and partly in section, similar to Fig. 1;

Fig. 4 is a vertical sectional view through the timing and delivering mechanism;

Fig. 5 is a plan view showing the means for varying the timing of the delivering fingers;

Fig. 6 is a detail showing the cans against the guide rail and retarded by the yielding plungers; and

Fig. 7 is a detail showing a can against a timing finger and moved forward by the plungers.

In carrying out the invention, the articles to be timed and delivered are fed promiscuously onto a moving support. Traveling timing devices in conjunction with the moving support engage the cans and carry them forward and deliver the same at pre-determined intervals of time at a pre-determined point. The traveling timing devices consist of an endless chain or flexible carrier having projecting fingers which are spaced on the chain or flexible carrier at pre-determined intervals corresponding to the time intervals that the articles are to be delivered at a given point when said chain or carrier is traveling at a pre-determined speed. The articles are fed promiscuously onto the support, which, as shown in the drawings, is a traveling support.

Coöperating with the timing devices for placing the articles in proper relation to the timing devices is a series of independent members, each of which is yieldingly mounted, and these members are arranged side by side. Said members are also of such a width so that a plurality thereof engages each article that is to be timed and delivered at the same time.

The device is especially adapted for handling round filled cans. It is well-known that if a can is moved suddenly or abruptly, it is liable to spill the contents thereof. Inasmuch as the cans are placed promiscuously on the traveling support, they must be either advanced or retarded, or in some way manipulated so as to place the cans in contact

with the timing finger. These yielding devices accomplish this result and without any sudden or quick movements of the can. The yielding devices are yieldingly pressed forward by independent springs. The pressure or force of these yielding devices, when first engaging the can, is less than when the devices engaging the can are diametrically opposite from the timing and delivering devices, and while one member is engaging the can with a maximum pressure or force, other members in front and in rear of the said member exerting a maximum pressure or force are likewise engaging the can, and this prevents sudden forward movements or rearward movements of the can on the support, and yet brings just the desired force against the can to place it in proper relation to the timing finger.

Referring more in detail to the drawings:—

The invention is shown as applied to a closing machine having a supporting standard 1 on which is mounted a rotating closing head 2 having seaming rolls 3. This seaming head also has a stack holder 4 in which the covers or ends are stacked, and the covers are fed one at a time underneath the seaming head. The filled cans are conveyed underneath the seaming head by a rotating drum 5 having a projecting thread 6 thereon. The cans are fed onto the drum and a cooperating supporting ledge 7, and the projecting thread slides the cans along the ledge 7 and the guiding rail 8 onto a support 9 underneath the seaming head. These parts are of the usual construction, and further description thereof is not thought necessary.

The improved timing and delivering device, as herein shown, is especially adapted for delivering filled cans to a closing machine of the characted described, and this timing and delivering device consists of a rotating support 10, which is pivotally mounted on a bracket 11 carried by the supporting frame of the closing machine which supports the drum 5. The shaft 12 rotating the drum is provided with a beveled gear 13 which meshes with a beveled gear 14 on a cross shaft 15, and this cross shaft 15 carries a gear 16 which meshes with a worm gear 17 splined to a shaft 18. The shaft 18 is mounted in the bracket 11, above referred to, and carries a disk 19 to which the rotating support 10 is riveted.

Directly above the rotating support 10 and secured thereto in any suitable way is a sprocket wheel 21 which rotates about a head 22. An endless chain 23 engages said sprocket and also engages a sprocket wheel 24 fixed to the lower end of a shaft 25 which is mounted in a bracket 26. The bracket 26 is supported at one end by the head 22 and is carried at the other end by an arm 27 which is fixed to the supporting frame of the closing machine. The shaft 25 is bolted to the gear 24 by suitable bolts 28. Fixed to the upper end of the shaft 25 and, as herein shown, formed integral therewith is a cap 30. Surrounding the shaft 25 is a hub 31 which carries a gear 32. The hub 31 is fixed to a disk 33. Said disk has a series of threaded openings 34 which are adapted to receive bolts 35. Each of the bolts 35 extends through a segmental slot 36 formed in the cap 30. By loosening the bolts 35, the disk 33 may have an angular adjustment relative to the cap plate 30. Mounted on the head 22 is a gear wheel 38. A traveling conveyer chain 39 coöperates with the sprocket wheels 38 and 32. This endless chain conveyer is provided with projecting fingers 40 which are equally spaced on the conveyer chain and will be referred to hereafter as the timing devices. The bracket 26 at its forward edge forms a guide rail 26^a.

The filled cans or other articles to be delivered are fed one at a time onto the rotating support 10. This support rotates in the direction of the arrow, as shown in Fig. 3. A guide 41 coöperates with the rotating support and endless conveyer so that the can bodies are delivered to the receiving drum 6 of the closing machine. If each can body rests against a timing finger, then the can bodies will be presented to the drum so as to be taken by the drum without any stopping of the can body. In other words, the can body will have a substantially continuous forward movement, and this prevents the spilling of the contents of the can which results when the filled can is stopped and again started.

The improvement is directed particularly to the means which places the can bodies in proper relation to the timing fingers. Said can bodies, as above noted, are fed promiscuously onto the rotating support. This means consists, as herein shown, of a supporting bracket 42 which is provided with a series of spring-pressed plungers 43. A spring 45 bears against the plunger and normally holds its shoulder 46 against a stop at the end of the socket. Said spring bears against a movable abutment 47 which is controlled by an adjusting bolt 48. This enables the tension of the springs to be readily varied. It will be noted from the drawings that the width of the plungers and the position of the same is such that a plurality of these plungers will engage the can body at the same time, and this bracket is secured to the frame of the machine by bolts 49 and 50. The bolts preferably pass through slots so that the bracket may be adjusted to change the position of the plungers for various sized cans.

The distance between the ends of the plungers, when in full forward position, and the guide rail 26^a is less than the diameter of a

can so that, as the support 10 rotates and the cans are brought into contact with the plungers, they will be moved in slightly compressing the springs. The plungers nearest the closing machine are also slightly closer to the guiding rail than those at the receiving end. As the cans engage these plungers, a certain lateral pressure will be exerted against the cans on the sides thereof opposite the guide rail which will carry the cans against the guide rail and which will retard the travel of the can so that it is brought back against the timing finger, as shown, for example, in Fig. 6 of the drawings. These plungers may operate to advance the can relative to the movable timing finger under certain conditions, as, for example, when the can is brought against the end of the timing finger. In Fig. 6 is shown more or less diagrammatically such condition. When the can engages the plungers, there is a lateral pressure or force exerted against the can by the plungers. The center of the can is in front of the timing finger, and when this force becomes sufficient, it will roll the can about the finger and slightly advance the same to the dotted line position shown in this figure. The pressure of the plungers increases as the spring in rear of the plunger is compressed to a greater extent. Therefore, the maximum pressure occurs on the plunger which is diametrically opposite the guide rail 26ª. At the same time, this plunger is exerting a maximum pressure, there are other plungers in front thereof which exert perhaps a less pressure, tending to force the can toward the conveyer chain and also tending to retard the advance movement of the can. The pressure of the plungers, however, rolls the can about the timing finger, but this forward movement of the can is slightly retarded by the plungers and, therefore, the movement of the can is slow and easy and not abrupt, and this prevents any sudden changes in the position of the can which would be liable to spill the contents thereof.

The gears 24 and 32 are so proportioned that the timing fingers travel slightly faster than the rotating support, although this is not an essential feature of the invention. By adjusting the position of the disk 33 relative to the cap 30, the timing of the fingers may be changed, that is to say, the cap 30 is rotated through a train of mechanism connected with the conveyer drum of the closing machine, and by shifting the disk 33 relative to the cap, the time when the finger delivers a can in contact therewith to the drum may be varied so that the drum will take up the can and carry it along without the can coming to a stop.

While we have shown and described the invention as applied to an apparatus for delivering filled cans to a closing machine, it will be understood that our improved conveying and timing apparatus may be used for conveying articles of any character to any kind of machine, or to a given point of delivery at predetermined intervals of time.

It is also obvious that minor changes in the details of construction and the arrangement of parts may be made without departing from the spirit of the invention, as set forth in the appended claims.

Having thus described the invention, what is claimed as new is:—

1. A conveying apparatus for articles including in combination, traveling timing and delivering means, yielding pressure means adapted to place each article in position to be conveyed by said timing and delivering means and means for advancing articles into engagement with and along said pressure means.

2. A conveying apparatus for delivering filled cans to a closing machine, including in combination means traveling in timed relation adapted to convey the cans, pressure means adapted to exert pressure simultaneously on each can at different points throughout an extended region for placing said cans in position to be conveyed by said conveying means and means for advancing cans into engagement with and along the pressure means.

3. A conveying apparatus for delivering filled cans to a closing machine including in combination means traveling in timed relation adapted to convey the cans, means adapted to exert pressure on each can throughout an extended region for placing said cans in position to be conveyed by said conveying means and means for advancing cans into engagement with and along the pressure means.

4. A conveying apparatus for delivering filled cans to a closing machine including in combination, traveling timing and delivering means, pressure means comprising a plurality of yielding members adapted to place said cans in position to be conveyed by said traveling means and means for advancing cans into engagement with and along the pressure means.

5. A conveying apparatus for delivering filled cans to a closing machine including in combination, traveling timing and delivering devices, pressure means comprising a plurality of yielding members adapted to simultaneously engage said cans at a plurality of points and place the same in position to be conveyed by said conveying means and means for advancing cans into engagement with and along the pressure means.

6. A conveying and timing apparatus for delivering filled cans to a closing machine including in combination, traveling timing fingers, a rotatable support adapted to receive the filled cans promiscuously, and

means coöperating therewith for placing the cans against the timing fingers, said means including a plurality of yielding members arranged side by side, said yielding members being opposed to the traveling timing fingers for forcing the same into proper relation therewith.

7. A conveying and timing apparatus for delivering filled cans to a closing machine including in combination, traveling timing fingers, a rotatable support adapted to receive the filled cans promiscuously, and means coöperating therewith for placing the cans against the timing fingers, said means including a plurality of yielding members arranged side by side, said yielding members being opposed to the traveling timing fingers for forcing the same into proper relation therewith, said yielding members being so constructed that a plurality of said members engage each can at the same time.

In testimony whereof we affix our signatures in the presence of two witnesses.

JOHN C. TALIAFERRO.
DANIEL P. ROBINSON.
JOHN COYLE.

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NELLIE T. RYAN.